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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/630,796      | 07/31/2003  | Kenji Shimizu        | Q71412              | 9751             |

23373 7590 10/19/2005  
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EXAMINER

RICKMAN, HOLLY C

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1773

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/630,796

Applicant(s)

SHIMIZU ET AL.

Examiner

Holly Rickman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 and 14 is/are allowed.
- 6) ☒ Claim(s) 1 and 4-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/19/05.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Interpretation*

1. With respect to claims 9 and 14, the limitation directed to “an amorphous initial growth portion” having a thickness “equal to or less than 1nm” has been interpreted to mean that an initial growth portion *must* be present. Thus, one of ordinary skill in the art would recognize that the recitation of a thickness “equal to or less than 1nm” necessarily *excludes a thickness of 0 nm*.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The rejection of claims 1 and 6-14 under 35 U.S.C. 102(e) as being anticipated by Futamoto et al. (US 6686070) is withdrawn in view of Applicant's arguments and amendments.

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The rejection of claim 2 under 35 U.S.C. 103(a) as being unpatentable over Futamoto et al. (US 6686070) is rendered moot by the cancellation of the claim.

6. Claims 1 and 4-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Futamoto et al. (US 6686070).

Futamoto et al. disclose a magnetic recording medium having a substrate, a first soft magnetic layer, a second soft magnetic layer formed from a CoW containing alloy corresponding to the claimed "orientation control" layer, a first CoCr based magnetic layer corresponding to the claimed "intermediate" layer deposited adjacent to the "orientation control" layer, a CoCr based perpendicular recording layer, and a protective layer (see Table 2 at the top of columns 13-14; Fig 1). The reference also teaches an apparatus having a single pole magnetic head for use with a recording medium as described above (col. 2, lines 15-30).

With respect to claim 14, it is noted that the present specification describes the initial growth portion as an area of disordered or amorphous growth. This area of disordered growth can be detected because crystal grains do not appear in a TEM image of the layer. The examiner maintains that the amorphous soft magnetic layer taught by Futamoto et al which corresponds to the claimed orientation control layer satisfies this claim limitation because the layer is formed from an amorphous material. Thus, it necessarily includes an amorphous "initial growth portion."

Futamoto et al. disclose all of the limitations of the claims as detailed above, except for a thickness of the orientation film within the range of 0.5-20 nm, the claimed saturation magnetization value of the orientation control layer and the claimed amount of Co.

Futamoto et al. teaches that the thickness and saturation magnetization of the soft magnetic layer corresponding to the claimed orientation control layer are result effective parameters that affect recording efficiency and areal recording density (see col. 16, lines 28-48). As such, it would have been obvious to one of ordinary skill in the art at the time of invention to determine the optimal values for thickness and saturation magnetization of the orientation control/soft magnetic layer taught by Futamoto et al. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of invention to adjust the Co concentration of the soft magnetic layers in order to achieve the desired level of saturation magnetization. Co is a magnetic element as is known in the art and therefore, the amount of Co in a given Co alloy affects saturation magnetization.

It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Response to Arguments***

7. Applicant's arguments have been considered but are not persuasive for the reasons set forth below.

Applicant's arguments do not address independent claims 11-12. These claims have not been amended and therefore, the rejection of record still applies.

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With respect to claim 1, Applicant argues that the alloys disclosed in Table 2 do not meet the limitations of claim 1 which “have more than six times the amount of W disclosed in Furamoto et al.

Claim 1 does not specify any specific amount of W. The claim only limits the amount of Co present. Applicant’s arguments do not address the examiner’s position of record relating to optimization of the amount of Co in the CoW containing layers taught by Futamoto et al.

***Allowable Subject Matter***

8. Claims 13-14 are allowable over Futamoto et al. for the reasons argued by Applicant.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Holly Rickman  
Primary Examiner  
Art Unit 1773